U-003-301.5

1290

RI/FS SAMPLE COLLECTION FROM WASTE PIT 4

05-31-91

Department of Energy
Fernald Site Office
P.O. Box 398705
Cincinnati, Ohio 45239-8705
(513) 738-6319

1290

MAY 3 1 1991

DOE-1451-91

Mr. Paul D. Pardi
Hazardous Waste Group Leader
Ohio Environmental Protection Agency
Southwest District Office
40 South Main Street
Dayton, OH 45402-2086

Dear Mr. Pardi:

RI/FS SAMPLE COLLECTION FROM WASTE PIT FOUR

References: 1) Letter, P. D. Pardi to G. W. Westerbeck, "DOE-FMPC Hamilton County Hazardous Waste Pit Four Closure," dated May 1, 1991

2) Letter, DOE-995-91, J. R. Craig to G. E. Mitchell, "Sampling of Waste Pit 4," dated March 28, 1991

In response to reference 1, the following clarifications are provided:

1. Special precautions have been taken to ensure that the liner will be protected during this sampling activity. The 10,000 pound track mounted drilling rig will not be driven onto the waste pit liner, but rather onto a temporary roadway. This temporary roadway will be constructed by placing two layers of geotextile 200 mil thick fabric (information enclosed), onto the existing liner and installing interlocking prefabricated wooden mats on top of this geotextile fabric. This temporary roadway will provide access for the drilling rig to reach the three well installation locations and will serve as a platform from which these wells will be installed. Specific details on this temporary roadway were provided to the OEPA (Reference 2-enclosed). The clay liner was compacted with a Caterpillar 815, sheep foot roller, with an approximate weight of 39,000 pounds. The surface of the pit was firm enough to compact the clay liner to 100% standard proctor density (114.7 pounds per cubic foot). Based on this information, this procedure will effectively protect the integrity of the liner by distributing the weight.

2. In response to your concern dealing with the repair of the liner after sample collection it should be realized that each of these three borings will be completed as wells to allow for future leachate collection. The protective well cover will be bonded to the liner to ensure surface water infiltration does not occur at the well head. Every attempt possible will be made to prevent damage from occurring to the liner. However, if damage does occur to the liner, FMPC employees, which have been trained, and have previous experience will conduct repairs to this liner.

After the completion of this sampling activity an integrity assessment of the liner of the waste pit will be performed by engineers from the professional engineering company contracted to conduct the remedial design for the FMPC final remediation.

Enclosed with this letter is a map, which shows the approximate location of the temporary roads and the wells. We hope this information provides the detail you require to approve this sampling process. Delays in this sampling will delay remediation activities associated with the FMPC Waste Pits. If you have any additional questions please call Oba Vincent at (513) 738-6937.

Sincerely,

Jack R. Craig
Fernald Remedial Action
Project Manager

FSO:Vincent

Enclosure: As stated

cc w/encl.:

J. J. Fiore, EM-42, GTN
B. Wright, EM-423, GTN
K. A. Hayes, EM-424, GTN
C. A. McCord, USEPA-V, 5HR-12
L. August, GeoTrans
D. R. Schregardus, OEPA-Columbus
K. Davidson, OEPA-Columbus
R. E. Owen, ODH-Columbus
G. E. Mitchell, OEPA-Dayton
R. L. Glenn, Parsons
S. Mallette, Parsons
W. H. Britton, WMCO
H. F. Daugherty, WMCO
S. W. Coyle, WMCO
I. W. Diggs, WMCO
J. D. Wood, ASI
AR Files

1290

Trevira® Spunbond nonwoven engineering products are highly needled fabrics with excellent tensile properties, high filtration potential and outstanding permeability.

Trevira® Spunbond Type 11 products are 100% continuous filament polyester nonwoven needlepunched engineering fabrics. They deliver a combination of advantages unmatched by any other spunbonded geotextiles. They're resistant to freeze-thaw, soil chemicals and ultraviolet light exposure.

Trevira® Spunbond nonwoven engineering fabrics offer excellent performance where the requirement is tensile reinforcement, planar flow, filtration, or separation. They are ideal for roadways, railbeds, drainage systems, pondliners, retaining walls. And much more.

TYPICAL PHYSICAL PROPERTIES OF TREVIRA® TYPE 11 PRODUCTS

Fabric Property	Unit	Test Method	1112	1114	1120	1125	1135	1145	1155
Fabric Weight	oz/yd²	ASTM D-3776	3.5	4.2	6.0	7.5	10.5	13.5	16.5
Thickness, t	mils	ASTM D-1777	60	70	95	115	150	175	215
Grab Strength (MD/CD)[1]	lbs	ASTM D-4632	120/95	150/115	230/180	305/235	420/350	500/425	650/750
Grab Elongation (MD/CD)[1]	%	ASTM D-4632	65/75	65/70	65/75	65/75	65/75	70/75	70/75
Trapezoid Tear Strength (MD/CD)[1]	lbs	ASTM D-4533	50/40	55/50	80/75	105/90	145/130	185/170	215/190
Puncture Resistance	lbs	ASTM D-4833	55	65	100	115	160	180	230
Mullen Burst Strength	psi	ASTM D-3786	195	230	345	400	590	750	900
Water Flow Rate	gpm/ft²	ASTM D-4491	200	200	180	150	120	90	75
Permittivity, Ψ	sec⁻¹	ASTM D-4491	2.71	2.71	2.44	2.04	1.63	1.22	1.02
Permeability, k	cm/sec	k = Ψt	.41	.48	.59	.59	.62	.54	.56
AOS	Sieve Size mm	ASTM D-4751	70–100 .210–.149	70–100 .210–.149	70–100 .210–.149	70–100 .210–.149	70–120 .210–.125	100–120 .149–.125	120–170 .125–.088
Standard Roll Widths[2]	ft		← 12.5 and 15.0 →						
Standard Roll Length[2]	ft		400	400	300	300	300	300	300

[1]MD = Machine Direction, CD = Cross Machine Direction.

[2]Other width and length rolls are available upon request.

MINIMUM AVERAGE ROLL VALUES (WEAKEST PRINCIPAL DIRECTION) OF TREVIRA® TYPE 11 PRODUCTS

Fabric Property	Unit	Test Method	1112	1114	1120	1125	1135	1145	1155
Fabric Weight	oz/yd²	ASTM D-3776	3.3	4.0	5.7	7.1	10.0	13.0	16.0
Thickness, t	mils	ASTM D-1777	50	55	80	95	130	155	200
Grab Strength	lbs	ASTM D-4632	80	100	160	210	300	375	500
Grab Elongation	%	ASTM D-4632	50	50	50	50	50	50	50
Trapezoid Tear Strength	lbs	ASTM D-4533	30	40	60	75	100	130	160
Puncture Resistance	lbs	ASTM D-4833	40	45	80	95	130	155	195
Mullen Burst Strength	psi	ASTM D-3786	170	190	305	360	530	700	825
Water Flow Rate	gpm/ft²	ASTM D-4491	150	150	130	100	80	60	40
Permittivity, Ψ	sec⁻¹	ASTM D-4491	2.03	2.03	1.76	1.36	1.08	0.81	0.54
Permeability, k	cm/sec	k = Ψt	.26	.28	.36	.33	.36	.32	.28
AOS[3]	Sieve Size mm	ASTM D-4751							

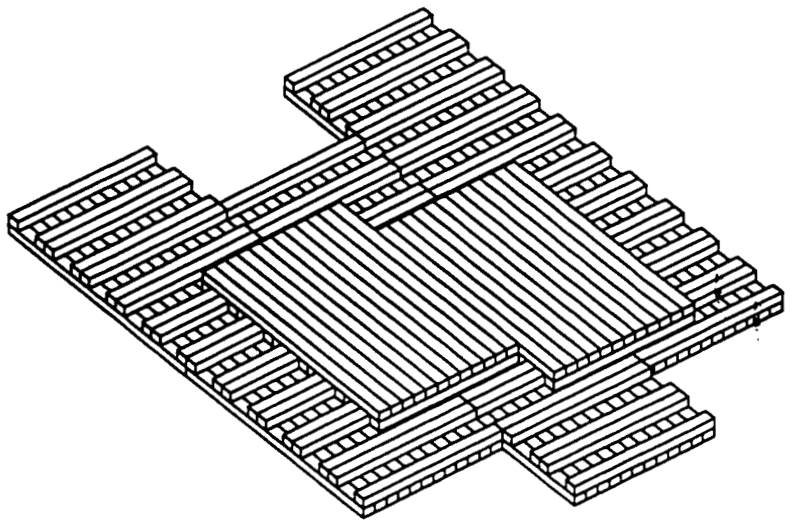
[3]Insufficient testing has been performed to statistically establish "minimum average values" at the time of this printing. Please contact your Trevira Distributor or Hoechst Celanese for additional information.

CRAFTED WITH PRIDE IN U.S.A.

UNI-MAT™

Uni-Mat International, Inc.

Road Systems ★ Temporary or Permanent Construction Sites ★ Drill Sites



***With* Uni-Mat™**
the location is paved.

UNI-MAT

"Unique" "Practical" "Versatile" "Cost Effective" "Trouble Free" "Problem Solver" "Revolutionary" "Speedy" "Stable" "Environmentally Compatible"

These terms have all been used by our constantly growing list of satisfied clients to describe the **Uni-Mat** system. Glowing praise indeed but none that has not been earned through proven results.

The patented one and one-half ply **Uni-Mat** interlocking system permits weight distribution over an area up to four times the area of the top mat. As a result of **Uni-Mat's** interlocking and weight displacement properties our system can and has been utilized for projects that would not have been deemed feasible with previously available portable systems or mats.

Uni-Mat is quick and easy to install, relocate or dismantle, requiring only a lift truck operator and two laborers on the average project. The system can be utilized over lawns, marsh, sand or a solid base.

Typical **Uni-Mat** clients are engineering/construction firms (temporary or permanent roadsites, loading docks, staging areas, work sites, crane tail-in pads, shoring, bridging, etc.) drilling contractors, general contractors, petrochemical plants, heavy equipment haulers, moving companies, utility companies, and equipment rental firms to name a few.

It is our goal through the following photographs of actual projects, specifications, and accompanying literature to provide some insight into our capabilities. *If you think it can't be done, chances are **Uni-Mat** has already done it.*

Joseph E. Pouyer
President and CEO

Manufacturing
Patented Product
Standard 8' x 14' Uni-Mat
Weight Approx. 1400 lbs.

Terms Available
Sale - Lease Purchase - Rental

Services Offered
Global Site Construction
Management Consulting and
Engineering Services Available

UNI-MAT

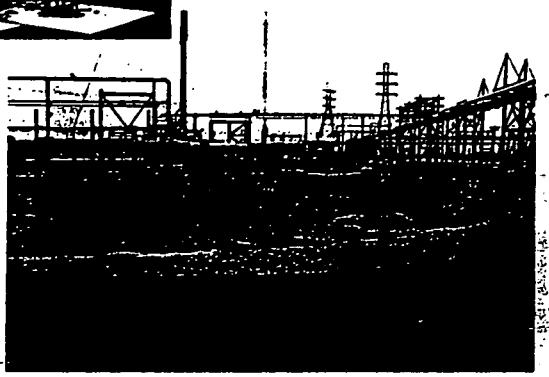
16' wide repair access road (marshy terrain)

A major utility company had to gain access through a flooded river bottom area to install two new tangent steel towers as a result of foundation undermining due to erosion.

In the words of the project's design engineer — *"We felt fortunate to have discovered the **Uni-Mat** system. The mats we purchased for this project performed trouble free. All parties involved in this project are very complimentary of the manner in which the mats handled the traffic, especially the concrete trucks and the 82 ton truck crane."*

16' wide temporary road for a plant construction project.

Lift truck laying a bottom mat for a roadway.



12' wide temporary road for a heavy equipment hauler as described below.

Due to the long rigid nature of the load (eight sets of chemical reactor legs, each 160' long and weighing 54.5 tons) the carrier was unable to negotiate the 90 degree turns in the permanent roadway. **Uni-Mat** solved this problem with temporary roadways (over soft terrain and water laden ditches) bypassing the problem turns. Each road was laid in four hours. Total move time was 6 hours.

Heavy transport and lift area accommodating 2 x 300 ton splitter towers

Loading dock and access road for heavy transports

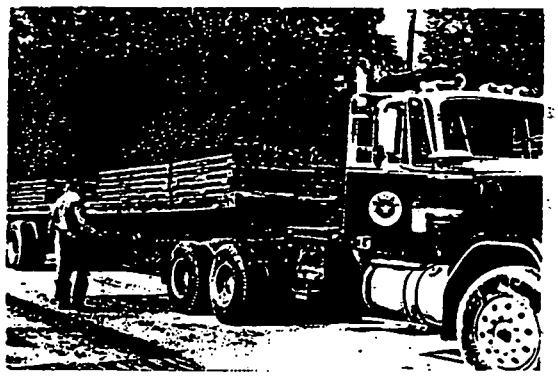
24' wide loading and access road for a commercial mover as described below

A major oil company was faced with relocating 6.7 miles of open faced files and ten truck loads of computer equipment to a new office building. The main entrance which was best positioned for maximum elevator access and best facilitated a nondisruptive move, had no road access. This problem was easily solved by utilizing a **Uni-Mat** weight disbursing temporary roadway over the lawn area with no damage to the terrain. Total installation time was 4 hours.

Uni-Mat base for asphalt permatizing

Permatizing process

Finished road



Uni-Mat Asphalt Permatizing System

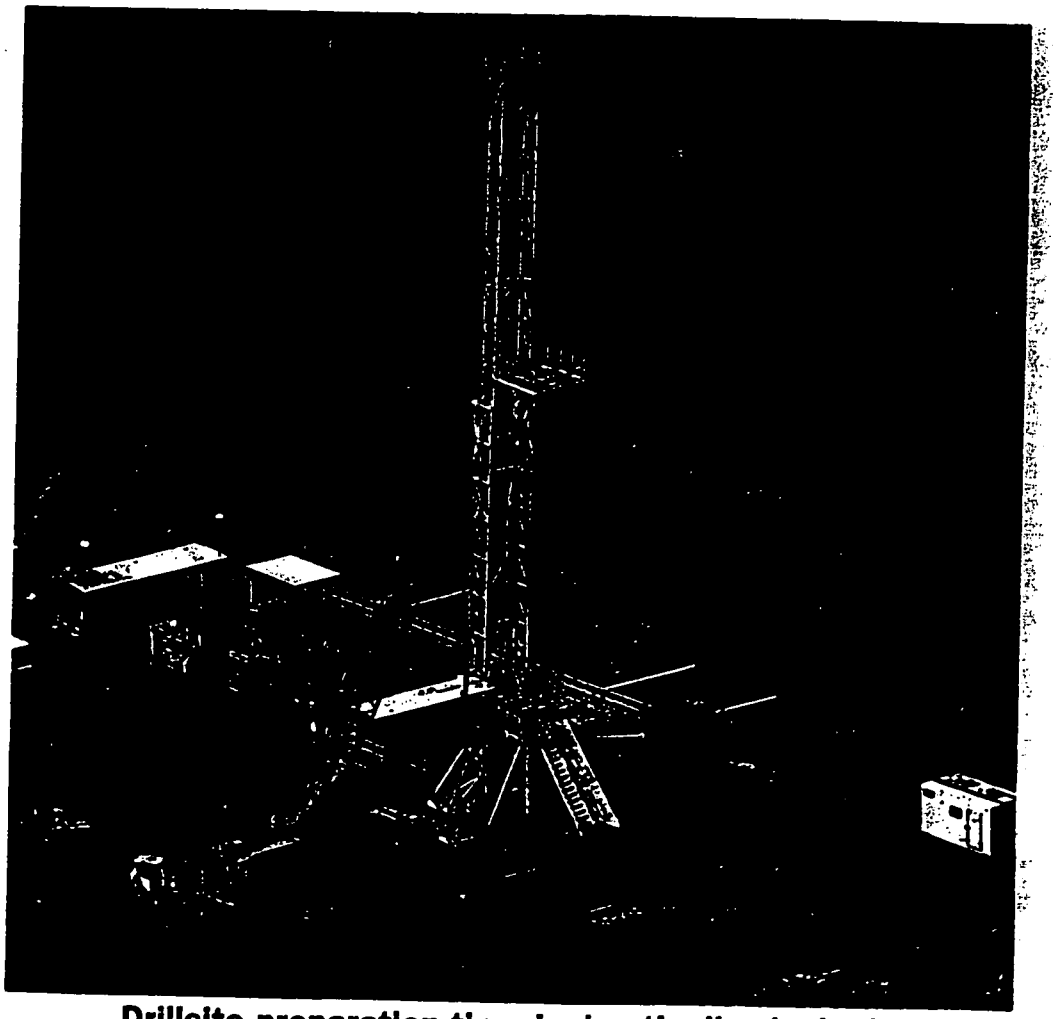
Uni-Mat has developed a revolutionary new patented process whereby a liquid asphalt/ polymer combined with aggregate coverstone are utilized on the interlocking **Uni-Mat** base for a fast, economical and extremely durable solution to permanent roadsites, parking areas or any location where a permanent, smooth surfaced, load bearing area is dictated.

UNI-MAT

Official Publication of

International Association of Drilling Contractors

Drilling Contractor



Drillsite preparation time is drastically slashed

(Reprinted from Drilling Contractor Magazine)

Drillsite preparation time is drastically slashed

BUILDING a typical 40,000 sq. ft. drillsite pad, complete with turnaround and 1,000 ft. of access road using a crew of three and a small forklift in as little as 3 (8-hour) days is now possible.

The key is a new patented system developed by Mr. Joseph E. Pouyer, president of Houston-based Uni-Mat International, Inc., that uses pre-fabricated interlocking mats, rather than conventional board lumber.

The time and problem-saving system is said to be especially attractive for many of the soft soil and marshy locations of the Gulf Coast area, in southern Texas and Louisiana, although they are suitable elsewhere.

A basic module, measuring 8 x 14 ft, consists of four bottom mats placed in the inverted position, with a single interlocking mat placed on top that locks the five mats in place. According to Uni-Mat's vice president Mike Schneider, the three-layer pre-fab mat modules "interlock both tangentially and transversely with no common overlapping seams. The interlocking modules, lying in a predetermined path, disperse the weight of heavy truck loads from the top mat onto four bottom mats."

The lack of labor, nailing on site and loose boards, he adds, reduces the risk of injury to personnel and equipment.

A 40,000 sq. ft. pad with 1,000 ft. of access road requires 1,000 individual mats, each weighing about 1,200 lbs. and containing 468 board ft. of oak lumber.

As with conventional board lumber locations, the Uni-Mat sites are leveled and the area is covered with either fabric or plastic sheeting. "After that," Schneider says, "it's just a simple matter of placing the mat modules on top, using a single machine an as little as two persons."

By contrast, conventional pads usually consist of three separate layers (mud boards, cross layer and top deck), all nailed by hand. The main problem with the single random-length boards is that they require frequent repair and renailing because they can shift under load and warp as the top layer dries up. In addition, to remove the pad the individual boards must be pried apart. As a result, many of the older boards break into small pieces, thus creating a disposal problem.

To prove the claimed advantages of the new system, Schneider has a stack of case histories of highly successful Uni-Mat applications made for both land drilling contractors and oil companies operating in the Gulf Coast area (Sabine Corp., Woolf & Magee, Inc., Resource Drilling, Ballard Exploration Co., Inc. and Pelto Oil Co., among others). An operation conducted by the latter stands out.

A crew of three and a forklift (top) are used to install the Uni-Mats. Heavy loads such as the rig up crane (above) are dispersed from each top mat to four bottom Uni-Mats.

According to Pelto's drilling superintendent Jeffrey R. Hughes, his company used two contractors to prepare the drillsites for a pair of wells to be drilled by Grey Wolf Drilling Co. and Richards Drilling Associates.

One contractor prepared the site in the conventional manner; the other used the Uni-Mat system.

"Both contractors," Hughes says, "started building their assigned locations on July 11, 1988. Using one forklift and two men, the 50,000 sq. ft. Uni-Mat location was completed on July 14. Grey Wolf's Rig No.7 then moved in, rigged up, drove conductor and spudded the well on July 18.

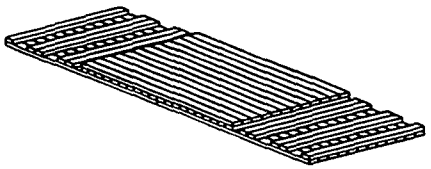
"The other contractor completed their conventional location on July 21. Using six to 12 men and three winch trucks, it took them 7 days longer than Uni-Mat. By the time the Richards rig spudded its well on July 23, the Grey Wolf rig was drilling ahead at 7,000 ft."

As for the significance of this "low-tech" development, J.W. Arnold, president, Woolf & Magee, Inc. says the new concept for building drillsites should greatly aid in streamlining both the laying and picking up process of the roads and locations. "This," he adds, "is almost as big a step as the drilling industry experienced when we went from steam rigs on which each and every part had to be put together and taken apart on each well to the unitized power rigs where major components were packaged and went together and rigged down much more speedily."

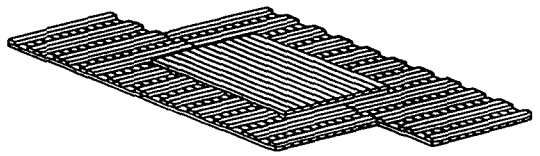
Reprinted from DRILLING CONTRACTOR

Illustration of Uni-Mat Interlocking Patterns and Mat Requirement Equations

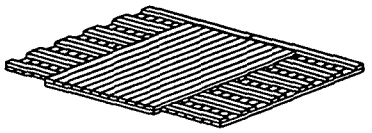
The following diagrams illustrate various interlocking patterns that are expandable for specific area requirements by continuing the pattern throughout. If, for example, pattern No. 4 (below) is chosen for a twelve foot wide road, one would add mats to the end in the same pattern until the desired length is attained. Should a twenty-four foot wide road be required pattern No. 6 would be modified to two full mats (inside bottom) and two 1/2 mats (outside bottom) and three full mats on top, always maintaining the staggered pattern as illustrated. Should a larger area be required (ie., construction sites, drilling locations, etc.) pattern No. 6 would be expanded for the length and breadth of the area. Mat dimensions are 8' x 14' on full mats and 4' x 14' on half mats. In the equations for computing mat requirements, UMR indicates **Uni-Mat** requirement and L = length of road. In computing **Uni-Mat** requirements for larger areas the equation is (L x width ÷ 112) x 2.



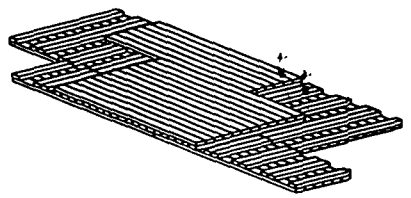
1. Eight foot wide roadway with 8' base. **Uni-Mat** requirement equation is UMR = (L + 14) x 2



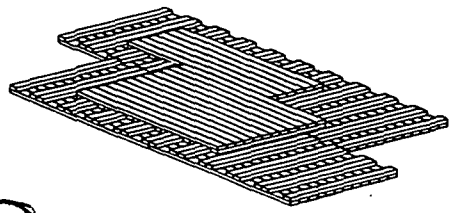
2. Eight foot wide roadway with 16' base for maximum weight displacement. UMR = (L + 14) x 3



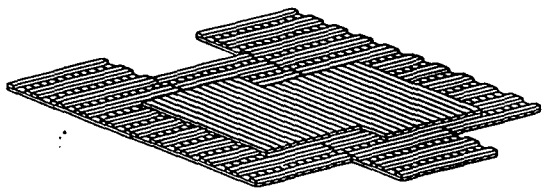
3. 12' 10" wide horizontal pattern with 14' base. UMR = (L + 8) x 2



4. 12' Wide with 12' base utilizing 1/2 mats top and bottom. UMR = (L + 14) x 3



5. 12' wide with 16' base utilizing 1/2 mats top (for additional weight displacement). UMR = (L + 14) x 3.5



6. 16' wide with 24' base (Maximum weight displacement). UMR = (L + 14) x 5

[redacted] UNI-MAT

System Specifications

	Single Uni-Mat 1-1/2 Ply	Double Uni-Mat 3 Ply
Dimensions:	8' x 14' x 4"	8' x 14' x 6"
Weight:	1200 to 1400 lbs.	2400 to 2800 lbs.
Lumber:	12 - 2" x 8" x 14' 10 - 2" x 8" x 8'	24 - 2" x 8" x 14' 20 - 2" x 8" x 8'

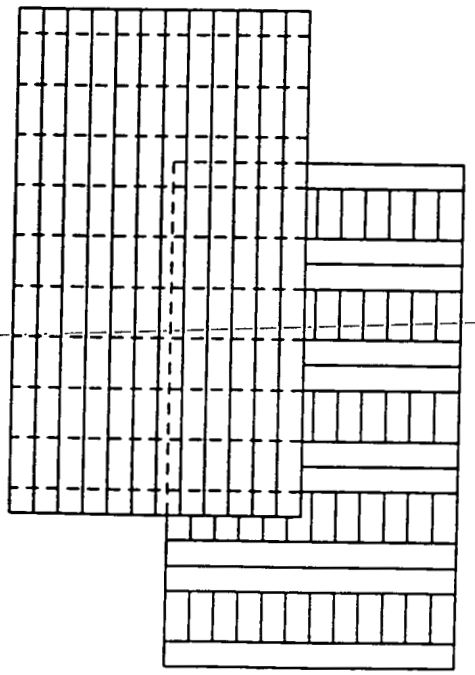
Engineering Data:
Oak Lumber

Compression (psi)

Prop Limit	Ultimate Strength	Modulus of Elasticity	Modulus of Rupture	Parallel to Grain Max. Crushing Strength	Perpendicular to Grain Fiber Stress @ Prop Limit
4300	7100	1.6 x 106	15,200	7440	1070

These values are suggested based on a reasonable safety factor and may vary with geographical source, seasoning, water content and so forth.

Uni-Mat
Layout Diagram



UNI-MAT

Now Let's Talk About SAFETY

Prevention of costly and possibly tragic lost time accidents to personnel and equipment is a topic of monumental importance we feel should be emphasized to our customers.

The concept of a prefabricated interlocking, weight disbursing mat system as patented by **Uni-Mat** was developed with safety as the primary consideration.

We urge you to strongly consider the following safety factors when choosing a temporary road or mat system for your next project.

- *Does the system you are considering interlock to prevent hazardous shifting and tipping of the work surface?*

  Unlike old style crane or laminated mats **Uni-Mat**'s system interlocks to provide a safe and stable surface.

- *Is installing the system labor intensive thereby multiplying the exposure to injury?*

  Unlike old style board roads that require extensive man hours dedicated to unloading, stacking, handling, assembling, maintaining, tearing down, restacking and hauling away lumber and nails, the **Uni-Mat** system requires only two laborers and a forklift operator for the average project.

- *Will the system tolerate heavy loads over soft or marshy terrain without the danger of excessive settling or sinking?*

  Uni-Mat's patented interlocking and weight disbursing concept eliminates common seams, provides a work area that is consistently stable on low ground pressure areas, and is maintenance free.

- *Will the work site be free of nails, boards or other hazardous debris when the system is dismantled and removed?*

  With **Uni-Mat** the prefabricated units are removed quickly and completely. No piles of loose boards with protruding or loose nails to invite accidents.

- *Is there a danger of injury as a result of tripping over exposed cable loops or lifting bolts?*

  The **Uni-Mat** system has eliminated these accidents waiting to happen.

- *Will the system you are considering help protect underground installations?*

  The load dispersion feature unique to the **Uni-Mat** system helps prevent concentrated loads when crossing sensitive underground installations such as pipelines, water mains and tunnels.

To Be Safe Specify **Uni-Mat.**

UNI-MAT

Uni-Mat Uses In The Construction Field

- Stable, safe road systems that support heavy haul loads and continuous traffic flow of machinery, equipment and personnel.
- Inventory control areas and protection of equipment, material and rolling stock from weather, soil and elements.
- Portable stable foundation areas for portable buildings, job shops and storage areas.
- Removable support foundation areas for heavy lift equipment (cranes, cherry pickers, manlifts, etc.).
- Walkways, parking areas and foundation areas for portable offices, hygiene areas and temporary assembly areas.
- Giant pallet application for movement of components or equipment to assembly areas.
- Storage points with built in dunnage contact points.
- Shoring for earth works.
- Protective support for crossing subterrain items such as pipelines, water mains, culverts, cables, etc.
- Bridge or critical low load - crossing spreaders that promote even distribution of heavy loads to main column supports, pillars or piles.

Advantages of Uni-Mat System Over Other Methods

- Patented, prefabricated mats greatly reduce installation and removal time. Minimal labor requirements help reduce costs and significantly reduce accident exposure.
- Uni-Mats interlock and lay in pattern that disperses weight of heavy loads.
- 1.5 ply design reduces weight of individual Uni-Mats making them easier to handle than old style mats.
- Versatility of Uni-Mats simplifies layout patterns.
- 8' x 14' mats permit easy shipment by truck, rail, barge or ship. Orderly stacking arrangement eases loading and off loading.
- Permatizing option is simple and cost effective.
- Provides a smooth, even and stable road or work surface eliminating the need to follow board tracks or the hazardous and equipment damaging shifting, sinking and tipping inherent with old style mats.

UNI-MAT

UNI-MAT International, Inc.

References

Alsay Drilling Company
6615 Grant
Houston, Texas 77066
Mr. Ace England, V.P.
Mr. Neal Rollie, Toolpusher
713/444-6960

Amerada Hess Corp.
P.O. Box 53852
Lafayette, LA 70505
Mr. Bill Williams, Drlg. Manager
318/261-9600

American Trading & Production Co.
900 S. College Rd. - Suite 203
Lafayette, LA 70505
Mr. Steve Seres, Drlg./Prod. Mgr.
318/237-4441

Bluewater Constructors, Inc.
5337 Dow
Houston, Texas 77255
Mr. Jon J. Welkey, President
713/462-8525

Brammer Engineering, Inc.
505 Travis, Suite 808
Shreveport, LA 71101-3034
Mr. Keith Evans, Engineering Mgr.
318/221-1587

Chevron USA Inc.
Rt. 1 Box 98
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Mr. R. Sterling, Yard Mgr.
915/573-1109

Cain Service Corporation
P.O. Box 24253
Houston, Texas 77029
Mr. Joe P. Cain, Jr., President
713/672-7474

Davenport-Mammoet
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Rosharon, Texas 77583
Mr. Donny Davenport, V.P.
713/431-2573

Gulf Coast Equip. Operators
P.O. Box 15
Stowell, Texas 77661
Mr. Bobby Way, President
409/296-9232

Indrill
P.O. Box 773
Mt. Pleasant, Mi 48858
Mr. Drew Innes, General Mgr.
517/773-6946

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Stafford, Texas 77477
Mr. Jerry Turner, President
713/561-5438

Magnolia Transportation
P.O. Box 24458
Houston, Texas 77229
Mr. Mike Wilson, Jr., V.P.
713/672-7474

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220 South Main Street
Memphis, TN 38103
Mr. John Wineman, Civil Engr./
Systems Engineering Dept.
901/528-4701

Mitsui Engineering
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Baytown, Texas 77522
Mr. Stan Shorr, Cons. Engr.
Mr. T. Oshio, Proj. Mgr.
713/428-9271

Mobil Oil Corporation
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Mr. Jerry Scego, Drlg. Mgr. USA
713/775-2083

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P.O. Box 8744
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713/225-3303

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809/725-1465

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Mr. Kerry Hulse, V.P.
713/721-1400

Scobey Moving Services Co.
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San Antonio, Texas 78217
Mr. Bill Sammis, Operations Mgr.
512/224-9573

Shell Oil Western E&P
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Houston, Texas 77001
Mr. Bob Roberts, Constr. Supt.
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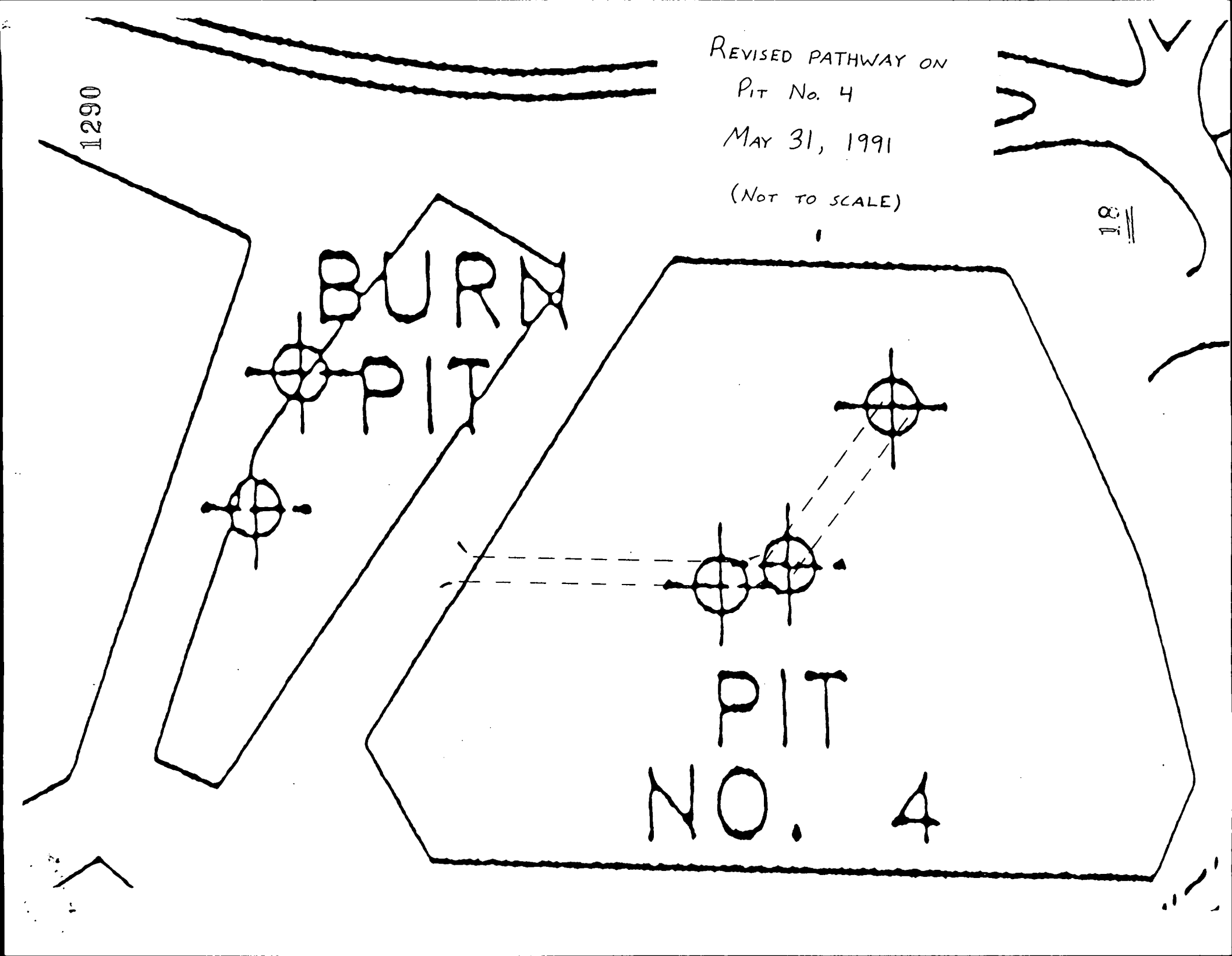
1290
REVISED PATHWAY ON
PIT No. 4
MAY 31, 1991
(NOT TO SCALE)
BURN
PIT
PIT
NO. 4